CASE REPORTS

Recovery from Heat Prostration and Body Temperature of 109° F.

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So far as could be determined by inquiry and review of the literature, there is no previous record of a patient's recovering from heat prostration in which the temperature reached (and may have exceeded) 109° F., as occurred in the present case.

REPORT OF A CASE

The patient, a 56-year-old Mexican crop worker, apparently previously in good health, collapsed while at work in the field and was immediately put into hospital. Atmospheric temperature at the time of this occurrence was 114° F. in the shade.

On admittance to hospital the patient was unconscious and had fecal incontinence. The blood pressure was 100/50 mm. of mercury, respirations were 18 a minute and the pulse was weak and thready at a rate of 120. Rectal temperature was at least 109° F., the highest point that could be registered on any of the clinical thermometers available. (Three thermometers were used to make sure, and the column of mercury reached that limit on all of them.) The patient was immediately put into a bathtub, where ice packed about his body melted quickly.

Infusion of 1,000 cc. of 5 per cent glucose in saline solution was begun at 3 p.m. while the patient was still in the tub. At 3:45 the temperature was 106° F. and at 4 p.m. was 103°. Taken out of the tub then and put to bed, the patient became conscious but, as he was irrational and hard to manage, he was strapped down and 100 mg. of promazine hydrochloride (Sparine®) was given intramuscularly. Still intractable an hour later, he was given 100 mg. of meperidine (Demerol®). At 6 p.m. the temperature was 97° and the patient was quieter, and 9 o'clock that night the temperature was 99°. The following morning he was cooperative but confused and irrational, not remembering what had happened the day before. By evening he was less irrational and the temperature was normal. He became normal in every respect in the next few days and he was discharged from the hospital six days after entering, without either physical or mental residual effect and with all reflexes normal.

Submitted July 2, 1959.

SUMMARY

A patient with heat prostration, the body temperature reaching at least 109° F., recovered in a few days and had no residual abnormality.

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Congenital Varicella with Primary Varicella Pneumonia

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A recent report[2] of primary varicella pneumonia mentioned that only five cases have been reported in persons under the age of 19. The case here reported is perhaps the first case in the literature of primary varicella pneumonia complicating congenital chickenpox, with the patient recovering.

REPORT OF A CASE

A 14-day-old white baby was admitted to the Communicable Disease Unit of the Los Angeles County General Hospital on August 24, 1959, with chickenpox. Chickenpox developed in his mother five days before delivery. At birth the baby was isolated from her, was observed in the hospital for two days, then discharged to the care of his grandmother. When he was ten days old, vesicular exanthem developed on the chest and abdomen, and his grandmother said he had fever. Three days later the body temperature rose to 102° F., two convulsions occurred and the patient was returned to the hospital.

The only abnormality noted on physical examination at that time was a papulovesicular rash, in all stages of development, over the entire body.

The rectal temperature was 102.2° F., the pulse rate 140 and respirations 60 per minute. The body weight was 6 pounds and 14 ounces (weight at birth was 8 pounds, 2 ounces).

Leukocytes numbered 10,600 per cu. mm.—52 per cent polymorphonuclear cells and 48 per cent lymphocytes. Hemoglobin content was 16 gm. per 100

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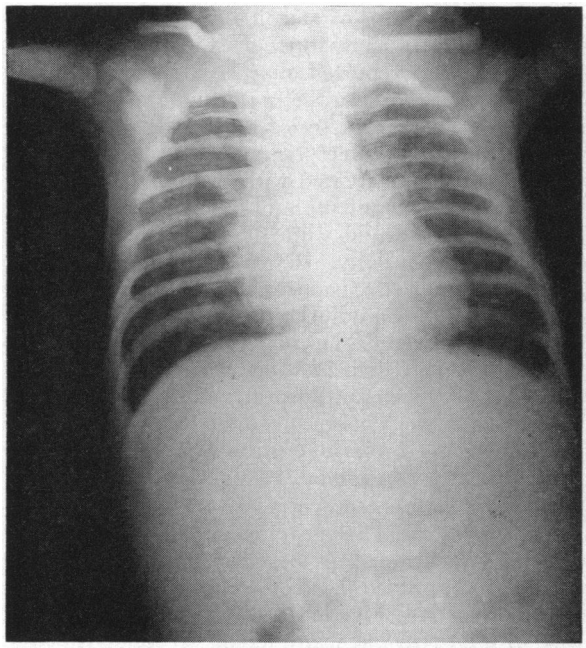

Figure 1. — Multiple patchy densities are evident throughout both lung fields.

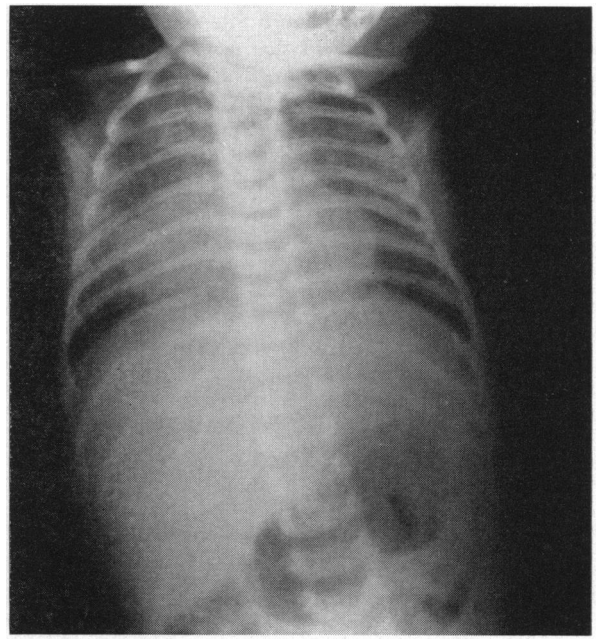

Figure 2.—The densities in the right lung field are now confluent, the left is unchanged.

cc. of blood. The urine gave a one plus reaction for albumin but was otherwise normal. Upon lumbar puncture, the opening pressure was 225 mm. (water) with the baby quiet. The puncture was traumatic and slightly cloudy fluid was obtained, containing approximately 1,300 erythrocytes and 27 leukocytes —all lymphocytes—per cu. mm. Sugar content was reduced by 4 drops of solution, and there was a faint reaction to a Pandy test.

The initial impression was varicella with encephalitis.

The patient was admitted to the ward and, except for the administration of 11 cc. of gamma globulin, was given only symptomatic treatment. Shortly after admission, harsh breath sounds without rales were noted in both lungs. An x-ray film of the chest taken at this time showed widespread patchy densities throughout both lung fields, which were believed to be due to primary varicella pneumonia (Figure 1). The baby was then given procaine penicillin, 600,000 units intramuscularly every twelve hours, chloramphenicol, 50 mg. intramuscularly every eight hours, and prednisone according to the following schedule: 10 mg. every six hours for four doses, then 10 mg. every eight hours for three doses, then 5 mg. every six hours for four doses. He was also placed in a croupette with oxygen flowing at six liters per minute.

The following morning the body temperature was 99.4° F. rectally and he was much improved. On the fourth day in the hospital, with the antibiotic dosage unchanged but the steroid dose reduced to 5 mg. twice daily, rib retraction upon respiration developed and the patient became restless and anorexic. Therefore, the dosage of prednisone was increased to 5 mg. four times daily. The rectal temperature was

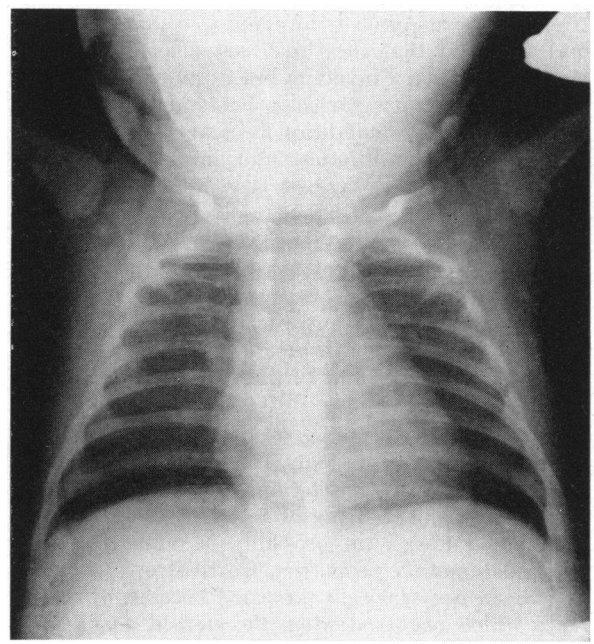

Figure 3.—Complete resolution of previous infiltrates is seen.

100.0° F. and it increased further to 100.8° F. for one day, then declined to 98.6° F., and the patient then remained afebrile. An x-ray film of the chest at the time of relapse showed that the infiltrate in the mid-lung and lower lung fields on the right had become confluent (Figure 2). The left lung was unchanged. Use of the croupette was discontinued on the fifth hospital day. On the eighth day the lungs became clear to auscultation.

After four days at 5 mg. four times a day, the

steroid dose was reduced to 5 mg. three times a day for four days, to 5 mg. twice a day for four days, to 2.5 mg. every eight hours for three days, to 2.5 mg. every twelve hours for two days and finally to 2.5 mg. daily for two days. Each day for the last four days of steroid treatment, 20 units of corticotropin (ACTH) gel was given intramuscularly. The total amount of prednisone given was 290 mg.

Antibiotics were discontinued at the same time as the steroids, on the twenty-first hospital day.

An x-ray film of the chest at the time of discharge showed considerable improvement, only patchy areas of consolidation remaining. Because of the known lag[13] between clinical condition and the roentgenographic appearance of the lungs, this was not considered a deterrent to discharge. The total stay in hospital was 30 days.

When examined again two weeks after leaving the hospital, the child was doing well. The lung sounds were normal and an x-ray film showed no lesions (Figure 3).

DISCUSSION

In this case, many of the previously tried agents for treatment were used—antibiotics, croupette, gamma globulin and steroids. Antibiotics have been tried numerous times before and it seems to be generally agreed that they may serve as prophylaxis against secondary invaders but do not influence the course of primary varicella pneumonia.[3,5] In this case, the patient's condition became worse while he was receiving antibiotics, and improved with no change in either dosage or type of antibiotic. The same is true of the croupette.

Gamma globulin has been advocated as a treatment for varicella[12] and has been used in primary varicella pneumonia[5]; but in the present case it appeared to have little if any effect, the condition of the patient having become worse after it was given and then improving without further use of gamma globulin.

That leaves the steroids, which, it is believed, were life-saving in this patient. The patient's condition fluctuated in a direct relationship to the daily dose of prednisone. The mode of action of steroids is not definitely known, but probably is related to their anti-inflammatory properties. Corticotropin may not have been necessary; it was used because of the relapse which occurred when the steroid dosage was first reduced.

The use of steroids in virus diseases is a problem which is far from settled. It has been assumed that virus diseases in general, and chickenpox in particular, are aggravated by the use of steroids.[9,10] Recently, however, this attitude has changed and steroids have been used in such virus diseases as herpes zoster, mumps orchitis and infectious hepatitis.[9] In the case of varicella pneumonia at least, it would appear that the question is not whether, but when. Primary varicella pneumonia occurs from the second to the fifth day after onset of exanthem—in the present case, on the fourth day. By then the rash is disseminated. The use of steroids at this stage would seem unlikely to cause further exacerbation but, as in the case here reported, may be life-saving.

Cases of primary varicella pneumonia are not numerous so that large series cannot be gathered to assess therapy. Bower[1] has reported fifteen cases from this hospital treated with steroids. His mortality was zero. Hunnicutt and Berlin[5] reported one case of a 26-year-old white female treated with 25 mg. prednisone daily. Her condition deteriorated before it improved. She also received antibiotics and gamma globulin in addition to supportive measures. Her dose of prednisone may have been harmful, it may have been insufficient, and it may have been ill-timed as she was still erupting when it was given. She recovered. Thompson and Cantrell[11] report the case of a 31-year-old white female successfully treated with prednisolone, 40 mg. daily at the beginning and then tapered over a two-week period. Other measures included tetracycline, oxygen, Alevaire,® and mild sedation. For the same reasons as in our patient it is doubted these other measures were more than supportive. Fitz and Meiklejohn[3] present the case of a 25-year-old white female treated with antibiotics and supportive measures without success, but responding rather rapidly when hydrocortisone was added to her regimen. Rosecan, Baumgarten and Charles[8] published the case of a 36-year-old white male treated with intravenous aqueous adrenal cortical extract and intramuscular cortisone. This case was complicated by shock both preceding and coincident with the use of steroids, and congestive heart failure following the use of steroids. As the electrolytes remained normal during treatment, the question of whether the steroids contributed to the failure is not documented. That should not be much of a problem today, however. Their patient recovered.

The mortality rate of primary varicella pneumonia has been reported as 16 per cent.[11] In this report, we have followed the courses of twenty patients treated with steroids, all of whom recovered.

Including our case, four cases of congenital chickenpox with primary varicella pneumonia have been reported.[6,7] We believe this is the first to have survived.

SUMMARY

In a case of congenital chickenpox with primary varicella pneumonia, steroids were used in the treatment. The patient recovered. This is believed to be the first successfully treated case. This therapy is considered to be worthy of further study.

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Skin Cancer in Smallpox Vaccination Scars

A Report of Five Cases

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THE PURPOSE OF THIS ARTICLE is to report five cases of an interesting phenomenon—the formation of basal cell skin cancers within smallpox vaccination scars. This occurrence was observed independently by all of the authors, all of whom practice in Southern California.

CASE 1. A 54-year-old man was observed because of herpes zoster involving the left shoulder. It was noted that half the vaccination scar in the left deltoid area had been replaced by a typical basal cell carcinoma. The outer edge of the tumor had taken the exact shape of the scar. It was removed and microscopically identified as a basal cell epithelioma. The man had a densely freckled skin from the waist up, evidence that he had spent a great deal of time in the sun at some time in his life.

CASE 2. A 48-year-old man, seen because of a recent change in a smallpox vaccination scar in the right deltoid area, had a spongy, granulomatous mass about 1 cm. in diameter replacing the scar and sharply limited to the boundaries of the scar. The tumor was removed and proved to be a basal cell epithelioma. The vaccination scar which had become carcinomatous had been present since early childhood. Another vaccination mark was present about two inches lower on the right arm. This one was only seven years old and showed no signs of malignant degeneration. The patient had a densely freckled skin from the waist up.

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CASE 3. A 48-year-old Caucasian woman with a swarthy complexion was seen for the treatment of infected sebaceous cysts involving both earlobes. Upon examination, a dark, brownish-black tumor was noted in the right deltoid area. It measured 2 by 1.5 cm. and completely filled the site of a smallpox vaccination scar which dated back to early childhood. Removed, the tumor was identified as a pigmented basal cell epithelioma. Several years later a second basal cell carcinoma developed within a small, depigmented scar on the right forehead.

CASE 4. A 44-year-old white man was observed because of a lesion located within a smallpox vaccination scar in the left deltoid area. The lesion was removed and histologically identified as a basal cell carcinoma. Two years previously the patient had had a small basal cell carcinoma removed from the back of his neck and two years later another small one appeared on the left temple area.

CASE 5. A 53-year-old woman of Mexican ancestry was seen because of ulceration within the center of a tumor 6 mm. in diameter which developed within a smallpox vaccination scar which dated back to childhood. The lesion was removed. The pathologist reported it "basal cell carcinoma."

COMMENT

It is interesting to speculate on why the vaccination scars in these patients became carcinomatous. There is extensive literature dealing with the problem of skin cancer in scars. So far as could be determined, there was no suggestion that some scars, particularly those on exposed areas of the body, become malignant because of carcinogenic rays of the sun. We would like to suggest that the carcinomas in the present cases may have been so caused. Two of the patients had a swarthy complexion—the kind ordinarily resistant to sunlight. The skin at the site of vaccination scars, however, was thinner and paler than the skin elsewhere on their bodies, which perhaps reduced whatever protection swarthiness offers. In the mild climate of Southern California there is much more likelihood that the deltoid region would receive a toxic amount of sunlight than would be the case almost anywhere else in the world. We believe that this is one reason why five cases of this type would be seen within a relatively short time by physicians practicing in this area whereas there has been only one other similar case report in the world literature.[1]

On the basis of the five cases reported here (and two others observed by one of the authors, one of the patients dying) we believe that any change within a vaccination scar should be thoroughly investigated. Whenever the diagnosis is not immediately apparent, biopsy is advisable.

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